

CLAIMS

What is claimed is:

- 1 1. An interconnection comprising:
2 an aluminum-copper-Group IVA metal alloy layer.
- 1 2. The interconnection of claim 1, wherein the Group IVA metal
2 is titanium.
- 1 3. The interconnection of claim 2, wherein the aluminum-copper-
2 titanium alloy layer contains up to 0.57 atomic percent titanium.
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- 1 4. The interconnection of claim 2, wherein the aluminum-copper-
2 titanium alloy layer contains about 0.1 atomic percent titanium.
- 1 5. The interconnection of claim 2, wherein the aluminum-copper-
2 titanium alloy layer comprises about 0.5 atomic percent copper and
3 about 0.1 atomic percent titanium.
- 1 6. The interconnection of claim 2, further comprising:
2 a first titanium layer;
3 a first titanium-nitride layer;
4 a second titanium layer; and

5 a second titanium-nitride layer,
6 wherein the second titanium-nitride layer overlies the second
7 titanium layer, the aluminum-copper-titanium alloy layer overlies
8 the second titanium-nitride layer, the first titanium-nitride
9 layer overlies the aluminum-copper-titanium alloy layer, and the
10 first titanium layer overlies the first titanium-nitride layer.

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1 7. An interconnection formed on a substrate of an integrated
2 circuit comprising an aluminum-copper-titanium alloy layer.

1 8. The integrated circuit of claim 7, wherein the aluminum-
2 copper-titanium alloy layer contains less than 0.57 atomic percent
3 titanium.

1 9. The integrated circuit of claim 7, wherein the aluminum-
2 copper-titanium alloy layer contains 0.1 atomic percent titanium.

1 10. The integrated circuit of claim 7, wherein the aluminum-
2 copper-titanium alloy layer contains about 0.5% atomic percent
3 copper and about 0.1 atomic percent titanium.

1 11. The integrated circuit of claim 7, further comprising:
2 a first titanium layer;
3 a first titanium-nitride layer;

4 a second titanium layer; and
5 a second titanium-nitride layer,
6 wherein the second titanium-nitride layer overlies the second
7 titanium layer, the aluminum-copper-titanium alloy layer overlies
8 the second titanium-nitride layer, the first titanium-nitride
9 layer overlies the aluminum-copper-titanium alloy layer, and the
10 first titanium layer overlies the first titanium-nitride layer.

1 12. An integrated circuit comprising:
2 a substrate; and
3 an interconnection level disposed about the substrate, the
4 interconnection level having an aluminum-copper-titanium alloy
5 layer.

1 13. The integrated circuit of claim 12, wherein the aluminum-
2 copper-titanium alloy layer contains less than 0.57 atomic percent
3 titanium.

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14. The integrated circuit of claim 12, wherein the aluminum-
copper-titanium alloy layer contains 0.1 atomic percent titanium.

1 15. The integrated circuit of claim 12, wherein the aluminum-
2 copper-titanium alloy layer contains about 0.5% atomic percent
3 copper and about 0.1 atomic percent titanium.

1 16. A multilayered interconnection structure formed on a
2 substrate, the interconnection comprising:

a first titanium layer;

a first titanium nitride layer;

an aluminum-copper-Group IVA metal alloy layer;

a second titanium layer; and

a second titanium nitride layer.

1 17. The multilayer structure of claim 16, wherein the Group IVA
2 metal is titanium.

1 18. The multilayer structure of claim 17, wherein the aluminum-
2 copper-titanium alloy layer contains less than 0.57 atomic percent
3 titanium.

19. The multilayer structure of claim 17, wherein the aluminum-copper-titanium alloy layer contains 0.1 atomic percent titanium.

1 20. The integrated circuit of claim 17, wherein the aluminum-
2 copper-titanium alloy layer comprises about 0.5 atomic percent
3 copper and about 0.1 atomic percent titanium.

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1 21. The multilayer structure of claim 16, wherein the second
2 titanium-nitride layer overlies the second titanium layer, the
3 aluminum-copper-titanium alloy layer overlies the second titanium-
4 nitride layer, the first titanium-nitride layer overlies the
5 aluminum-copper-titanium alloy layer, and the first titanium layer
6 overlies the first titanium-nitride layer.

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